

MEMORANDUM FOR THE RECORD

SUBJECT: Chinook Channel O&M dredging: Evaluation of pesticide (endrin aldehyde) concentrations in sediments.

1. Substantial concerns were raised by PL-AF upon evaluating results of chemical analyses of sediments to be dredged and placed inwater at the Chinook navigation project in the Columbia River estuary. Samples had been collected by PL-AF on 30 December 1986 and final results of analyses, performed by our NPD Materials Lab, were provided to this office in late April 1987. Upon reviewing the pesticides data several weeks ago to plan for any additional field samples to be collected, exceptionally high concentrations of endrin aldehyde were noticed and investigated. Environmental and analytical chemists and biologists with several agencies and OSU were contacted for more information on potential sources and toxicity of the observed endrin levels. The following contacts were made:

Mr. Bruce Long EPA, Oregon Field Office, Portland.
Mr. Gary Larsen U.S. Forest Service, NW Region, Portland.
Mr. Bob Kiezit, WA DOE, Olympia, WA.
Dr. Michael Mix, OSU
Ms. Lynn Frandsen, EPA Region x, Seattle, WA
Dr. Eric Crecilius, Battelle NW Coastal Lab, Sequim, WA
Dr. Jim Witt, OSU Mr. Richard Karn, WES analytical lab
Mr. Vic McFarland, WES
Dr. Ajmal Ilias, NPD Materials Lab

A consensus of opinion emerged from these conversations that the levels observed in the Chinook sediments (50 - 350 ug/kg) were high and could cause acute toxicity to aquatic organisms if the materials were deposited inwater. However, it was recognized that endrin is a difficult pesticide to identify analytically. It was suggested that we should complete further analysis of the sediments, including reanalysis of original samples as well as resampling, to confirm the presence of endrin. We conveyed these concerns to Navigation Branch, who agreed to delay scheduled maintenance dredging until we could complete further analyses.

2. On 10 July 1987 we collected 6 additional samples from the project with a gravity corer and Ponar grab, then submitted these along with 3 samples from the December 1986 survey to the Battelle Northwest Coastal Lab in Sequim, WA, for expedited pesticide/~ analysis. Results were provided to us in a telephone conversation between Rudd Turner, ~AF, and Jim Gurtlsen, Battelle organic analytic chemist who completed the analyses, on 20 July.

3. Mr. Gurtilsen stated that he did not detect endrin or endrin aldehyde in any of the 9 samples provided. His analyses were run on a gas chromatograph, with 2 columns to provide confirmation, at a detection limit of 1 ppb for all compounds. He did get apparent "hits" on several of the samples initially but these were not confirmed upon passing samples through the second column. In fact, there were no other pesticides or PCBs detected. He did observe small peaks for DOD and DDE, decay derivatives of D~, but these were below what he considered his reliable detection limit and would not be reported except as a note in their report.
4. He further stated that he had discussed the analyses with Dr. Ajmal Ilias, the organic chemist at the NPD Materials Lab who had analyzed the original samples, and Dr. Ilias concurred with his conclusions. The original analysis had been based on a run with a single gas chromatograph column without confirmation. Confirmation scans with different columns are standard procedures for samples analyzed at Battelle, according to Mr. Gurtilsen.
5. It appears, therefore, that the results reported to us in April were erroneous since the samples had not been run through a second column. It is recommended that the NPD Materials Lab obtain adequate chromatograph columns to run confirmation scans on sediment samples when priority pollutant organic compounds are detected.
6. Based on the Battelle analyses and discussions with others, sediments scheduled to be clamshell dredged from the Chinook project up to a line at RM 01 + 17 should not cause toxicity affects if inwater disposal at area D occurs. We therefore withdraw our recommendation that inwater disposal be avoided.
7. The environmental sensitivity shown by Portland District's Navigation Branch in delaying the start of dredging, in spite of strong pressure to proceed due to contracting complications, is commendable. The additional time allowed us to assure that significant impacts on aquatic life would not occur from this year's dredging at Chinook.

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